**BEFORE THE ARIZONA POWER PLA
TRANSMISSION LINE SITING COMMITTEE**

ORIGINAL

IN THE MATTER OF THE APPLICATION OF SUN STREAMS, LLC, IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360.03 AND 40-360.06, FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF THE SUN STREAMS GEN-TIE PROJECT, A 34.5 / 500KV SUBSTATION AND 0.3-MILE 500KV GEN-TIE LINE INTERCONNECTING A PHOTOVOLTAIC (PV) SOLAR GENERATING FACILITY TO THE ADJACENT HASSAYAMPA SWITCHYARD IN MARICOPA COUNTY APPROXIMATELY 5 MILES SOUTHEAST OF WINTERSBURG, APPROXIMATELY 11 MILES SOUTHEAST OF TONOPAH, APPROXIMATELY 5 MILES WEST NORTHWEST OF ARLINGTON, AND APPROXIMATELY 14 MILES WEST OF BUCKEYE, ARIZONA.

Docket No. L-00000XX-14-0120-00168

Case No. 168

NOTICE OF FILING APPLICANT'S WITNESS SUMMARIES AND PRE-FILED DIRECT TESTIMONY

Applicant, Sun Streams, LLC hereby files the following: (1) Summaries of expected Direct Testimony of witnesses Kathryn Arbeit, Jim Woodruff, Max Bakker, Jim Filippi, and Randy Schroeder; and (2) pre-filed direct testimony of Max Bakker, Jim Filippi and Randy Schroeder for the above-captioned case.

RESPECTFULLY SUBMITTED this 6th day of May, 2014.

MOYES SELLERS & HENDRICKS

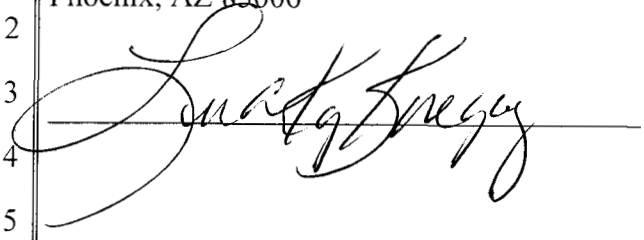
Jay I. Moyes
Jason Y. Moyes
1850 N. Central Avenue, Suite 1100
Phoenix, Arizona 85004
(602) 604-2141

ORIGINAL & 25 copies of the
Foregoing were filed with Docket
Control on the 6th day of May, 2014.

Copies were electronically delivered this 6th
day of May, 2014, to:

Hon. John Foreman, Chairman
Arizona Power Plant and Transmission
Line Siting Committee
1275 W. Washington
Phoenix, AZ 85004

Coash & Coash
Arizona Reporting Service
1802 N. 7th Street
Phoenix, AZ 85006



SUN STREAMS GEN-TIE PROJECT

CASE 168
Before the
Arizona Power Plant and Transmission Line Siting Committee
Hearing set for
May 12, 2014

SUMMARIES OF EXPECTED DIRECT TESTIMONY

PANEL 1:

Kathryn Arbeit, Director, Project Development, First Solar, Inc.

Ms. Arbeit's biographical information is attached.

Ms. Arbeit will briefly introduce the corporate structure and ownership of the Applicant, Sun Streams, LLC, and its parent company, First Solar, Inc. She will present general background information regarding the renewable energy experience of First Solar and the Sun Streams team, the currently operating utility scale solar energy projects that First Solar has developed, and other projects currently in development. Her remarks will provide support for a finding of experience necessary to achieve the objectives of the Gen-tie Project to interconnect the associated Sun Streams Solar Project.

Jim Woodruff, Vice President, State and Local Government Affairs, First Solar, Inc.

Mr. Woodruff's biographical information is attached.

Mr. Woodruff will set a policy backdrop for the Sun Streams Gen-tie Project and the need for the Project in connection with the Sun Streams Solar Project. He will speak to the evolving public policy of encouraging solar energy development in the state of Arizona, both for use by Arizona utilities and customers and for export to the broader southwest renewable energy markets. He will address how the Project will advance Arizona's policy objective of becoming a solar energy capitol. He will speak to the nature of the market and the need for renewable energy in Arizona and the southwest, and how the Project fits into the procurement and power purchase agreement negotiation processes that typify the functions of that marketplace.

PANEL 2:

Max Bakker, Atlas Renewable Power, Project Development Manager

Mr. Bakker's initial direct testimony is being pre-filed, and is attached. Mr. Bakker's testimony will present an overview of the Sun Streams Gen-tie Project. His testimony will describe the location and the physical components of the Gen-tie Project Facilities. Mr. Bakker will also provide an overview of the associated, proposed Sun Streams Solar Project photovoltaic generation facility for the interest and information of the Siting Committee. He will address the status of the Project-specific marketing efforts to secure a customer and purchase agreement that will allow financing and construction of the Solar Project and confirm the need for the Gen-tie Project to interconnect the Sun Streams solar power into the grid.

Jim Filippi, Director, Transmission & Interconnection, First Solar, Inc.

Mr. Filippi's initial direct testimony is being pre-filed and is attached. His testimony will address the transmission system impact technical studies and approvals that have been completed. He will testify about the status of ongoing negotiations with Salt River Project as agent for the owners of the Hassayampa Switchyard leading to the contractual arrangements required in order for the Gen-tie Project to interconnect the Sun Streams Solar Project to the grid at the Hassayampa Switchyard. He will also address the technical practicability of the Project and experience with equipment and methods for achieving the Project's objectives.

Randy Schroeder: Principal, EnValue, Project Environmental Consultant

Mr. Schroeder's initial direct testimony is being pre-filed and is attached. Mr. Schroeder will testify regarding the environmental investigations, assessments and studies completed, and will address each of the statutory factors required to be considered in issuing a Certificate of Environmental Compatibility, pursuant to A.R.S. § 40-360.06. Mr. Schroeder will also testify about the public outreach program that has been undertaken to ensure public knowledge and opportunity for input, including media notices and targeted mailings, the public open house, the Project toll-free number and the Project website.

Kathryn Arbeit, Director, Project Development, First Solar, Inc.

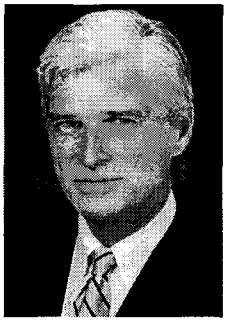
Kathryn is currently leading First Solar's development activities in the Southwest as a Director of Project Development. Kathryn has fifteen years of experience working with electric utilities in the Western U.S. and thirteen years of experience focused on large-scale renewable energy project development. She previously led First Solar's project development activities in the Eastern US and Texas. She also led development of the 550 MW Topaz Solar Farm in San Luis Obispo County that is currently under construction.

Prior to joining First Solar, Kathryn was a Director of Business Development at OptiSolar Inc.

In a previous position at Orion Energy LLC (now BP Alternative Energy), Kathryn led the development of 682 MW of wind energy projects currently operating in Oregon and Texas.

Prior to Orion, Kathryn worked in energy efficiency and renewable energy consulting.

Kathryn received a BS degree in Earth Systems Science with honors from Stanford University, with a focus in Energy Science and Technology.



James B. Woodruff
Vice President, State & Local Government Affairs

Jim Woodruff is Vice President, State & Local Government Affairs, for First Solar, Inc. He oversees First Solar's broad range of policy matters with his primary focus being an advocate for the company's interests before the state & local regulatory and legislative bodies in the U.S. Mr. Woodruff also provides support to the company's project development team to ensure timely execution of the company's 2.5 GW North American project pipeline.

Mr. Woodruff joined First Solar after serving as Vice President of Government Affairs at NextLight Renewable Power LLC from April 2008 until First Solar's acquisition of NextLight in July 2010.

Before joining NextLight, Mr. Woodruff worked for Southern California Edison Company (SCE), where he first served as In-House Counsel and later, as a Manager of Regulatory and Legislative matters for SCE's Renewable and Alternative Power business division.

While at SCE, Mr. Woodruff represented the company both as an attorney and as a witness in a broad range of regulatory, litigation and legislative proceedings affecting the California energy markets and the procurement of renewable and alternative energy. Prior to his employment at SCE, Mr. Woodruff practiced law with an emphasis on commercial transactions and litigation.

Mr. Woodruff graduated with distinction from Yale University in 1978, receiving a B.A. in American Studies. In 1982, he received a J.D. from the University of California, Los Angeles' School of Law.

BEFORE THE ARIZONA POWER PLANT AND

TRANSMISSION LINE SITING COMMITTEE

Docket No. L-00000XX-14-0120-00168

CASE NO. 168

Sun Streams Gen-tie Project

DIRECT TESTIMONY

of

Max Bakker

On Behalf of Applicant, Sun Streams, LLC

DIRECT TESTIMONY OF MAX BAKKER

On Behalf of Applicant Sun Streams, LLC
Case No. 168

I. INTRODUCTION

Q. **Please state your name.**

A. My name is Max Bakker.

Q. **By whom are you employed and in what capacity?**

A. I am engaged as an independent contractor by First Solar, Inc., which is the parent company of the Applicant in this case, Sun Streams, LLC ("Sun Streams").

Q. **Please briefly describe your educational background and work experience.**

A. A statement of my qualifications is set forth in Attachment 1 to this testimony.

Q. **Please describe your role in the Sun Streams Gen-tie Project.**

A. I serve as the Project Development Manager.

Q. **What is the purpose of your testimony?**

A. I will provide an overview of the Sun Streams Gen-tie Project, some general information about the associated Sun Streams Solar Project, and discuss the issue of need for the Gen-tie Project.

II. SUMMARY

Q. **Please summarize your testimony.**

A. Sun Streams is seeking authorization to construct the Sun Streams Gen-tie Project, a 34.5 / 500kV substation and approximately 0.3-mile 500kV gen-tie line. The Gen-tie Project will interconnect a proposed photovoltaic (PV) solar generating facility, commonly referred to as the Sun Streams Solar Project, to the regional electric grid at

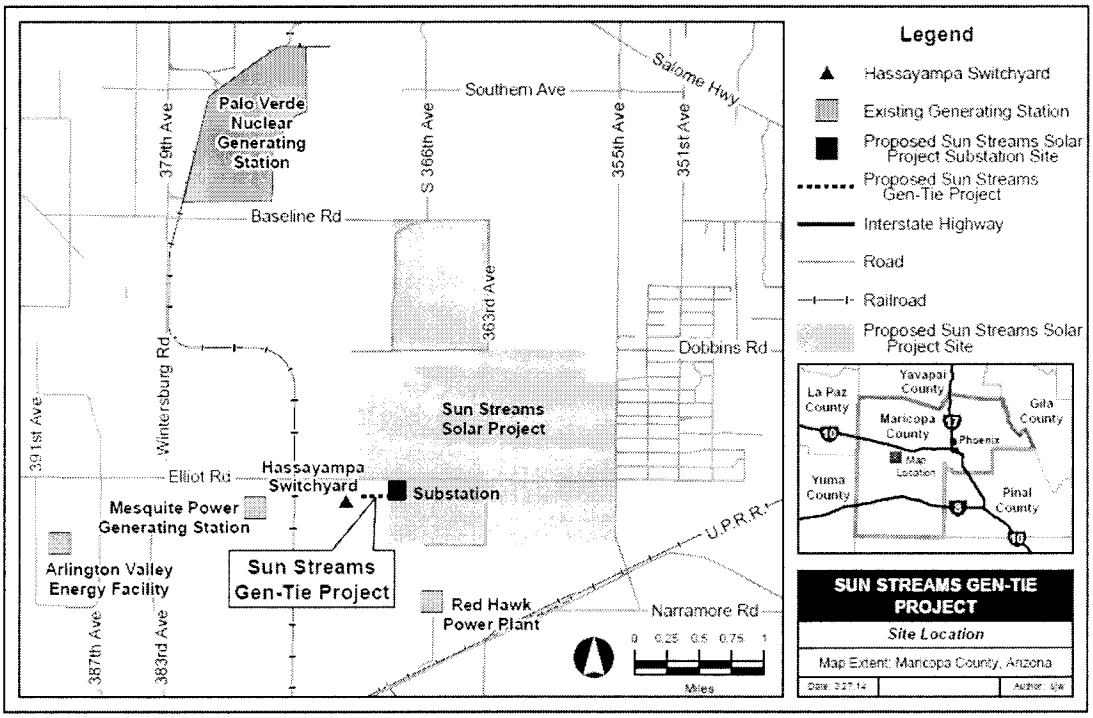
the existing Hassayampa Switchyard. I will describe the location and simple components of the Gen-tie Project Facilities. I will also present a brief overview of the Sun Streams Solar Project Facility for the interest and information of the Siting Committee. By interconnecting the Sun Streams Solar Project to the regional electric grid, the Gen-tie Project will provide marketable renewable energy to help meet the needs of future customers in Arizona and the Southwest for clean, renewable energy.

III. DETAILED TESTIMONY REGARDING OVERVIEW OF AND NEED FOR THE SUN STREAMS GEN-TIE PROJECT

Q. **Please describe the location of the proposed Sun Streams Gen-tie Project.**

A. The Sun Streams Gen-tie Project Site is located on the south side of West Elliott Road in the NW1/4 of Section 14, T 1 S, R 6 W, G&SRB&M, in Maricopa County. It is approximately 5 miles southeast of Wintersburg, approximately 11 miles southeast of Tonopah, approximately 5 miles west-northwest of Arlington, and approximately 14 miles west of Buckeye, Arizona. The Gen-tie Project Site is immediately east of the existing Hassayampa Switchyard property.

The Gen-tie Project is located in the same area as the Palo Verde Nuclear Generating Station, the gas-fired Arlington Valley Energy Facility, the Arlington Valley Solar Energy II Facility, the gas-fired Mesquite Power Generating Station, the Mesquite Solar Generating Facility, the gas-fired Redhawk Power Station, the Hassayampa Switchyard, and the multiple transmission lines interconnecting at the Hassayampa Switchyard.



Q. Please describe the specific components of the Sun Streams Gen-tie Project.

A. The Sun Streams Gen-tie Project components are simple. They will consist of (1) a new approximately 5-acre, 34.5 / 500kV substation ("Project Substation") and (2) a short, approximately 0.3 mile, 500kV gen-tie line ("Gen-tie Line") originating at the Project Substation and interconnecting with the adjacent existing 500kV Hassayampa Switchyard. The Gen-tie Line will originate on a new dead-end structure within the Project Substation and terminate on an existing dead-end structure within the Hassayampa Switchyard. The Gen-tie Project will include only three new conductor support structures – specifically, one dead-end structure within the new Project Substation fence-line; one steel lattice structure within the Hassayampa Switchyard fence-line; and one steel lattice structure to be located outside of and between the two fence-lines on land owned by the owners of the Hassayampa Switchyard. When the Gen-tie Line leaves the Project Substation site it will cross only land that is owned as

part of the Hassayampa Switchyard properties. The dead-end structure within the Project Substation will be of a typical "A frame" design, up to approximately 120 feet tall. The other two new structures will be of typical steel lattice design, up to approximately 170 feet tall. Conceptual drawings of such typical structures are included in the CEC Application as Figures G1-a, G-1b, and G-2 of Exhibit G.

The Project Substation Site improvements will include the necessary gated access road from West Elliot Road and a gravel interior maintenance roadway. The Site will be graded for drainage to an on-site retention basin, and the surface inside the fence-line covered with aggregate material in compliance with applicable electrical safety requirements. It will be surrounded by gated security fencing with chain link topped by barbed wire approximately 8 feet high; and will have typical substation security and safety lighting in compliance with Maricopa County lighting and other applicable safety requirements.

Q. **Can you provide an overview of the proposed Sun Streams Solar Project photovoltaic (PV) generating facilities for the information of the Committee members?**

A. The Solar Facility will cover an approximately 2,155 acre site on both sides of West Elliot Road, west of 355th Avenue in Maricopa County, adjacent to and lying north-east of the existing Hassayampa Switchyard. A proposed Site Plan is provided as Figure 4-6 of the CEC Application. The Solar Facility will include:

- Fields of thin-film PV panel modules manufactured by First Solar, mounted in north-south rows on single-axis, east-west tracking mechanisms;

- Electrical collection wiring systems, with power conversion stations, DC to AC inverters, step-up transformers, combining switchgear, and 34.5kV conductor(s) into the Project Substation;

- One or two operation and maintenance buildings;

- One or two maintenance/laydown areas; and

- Typical associated infrastructure such as access gates, driveways, parking lot(s), storm drainage channels and retention basins, fencing, signage, motion activated security and lighting equipment, and up to two septic tanks and leach fields serving operations restroom facilities.

The PV solar panel arrays will be organized into blocks of over 20,000 panels each. Each block will have its own power conversion station ("PCS"). The PCS will contain inverters, transformers, and cabling and grounding systems. Power produced by the PV panels will be converted from DC current to AC current and transformed to 34.5kV voltage, routed through underground cabling to combining switchgear, then transmitted at 34.5kV to the Gen-tie Project Substation where it is further transformed to 500kV voltage. The Solar Facility will be rated to produce up to 150MW (AC) of electricity at the point of interconnection to the Hassayampa Substation.

Security will be provided by chain link fence topped with barbed wire approximately 8 feet high, with only gated and locked access. Security lighting will be downward directional and in compliance with Maricopa County requirements.

The Solar Facility will require an average of about 400 workers during the construction phase. Upon commercial operation it will maintain four to six full-time on-site employees, but will also require some off-site employees who will perform remote technical operational control functions.

Q. **Can you describe the status of the marketing of power to be produced by the proposed Sun Steams Solar Project, and the need for the Gen-tie Project in the context of First Solar's efforts to market the output from and secure financing for the overall Sun Streams undertaking?**

A. In 2013, First Solar, Inc. acquired Sun Streams from Element Power. First Solar has since been actively pursuing a customer for the approximately 150MW output. Simply stated, without a power purchase agreement neither the Sun Streams Solar Project nor the Sun Streams Gen-tie Project can be financed in today's capital marketplace; and without such financing the projects will not be built. Any customer who contracts to purchase the clean, renewable power from Sun Streams (thereby enabling the necessary financing and ultimate construction) will do so because that customer has a *need* for that power. Obviously, the Gen-tie Project Facilities, then, are critically needed, for without them there is no way to provide Sun Streams' power output to the grid for delivery to a customer.

Without the pending Amended Special Use Permit from Maricopa County, the Sun Streams Solar Project won't be constructed. Likewise, without the CEC requested in this proceeding, the Gen-tie Project Facilities won't be constructed. Having those two permits timely in hand will, as a marketing matter, significantly enhance the likelihood of procurement of a customer for the Sun Streams power

output. The Gen-tie Project's interconnection at Hassayampa provides direct physical access to the "Palo Verde Hub" marketplace, enhancing the marketability of the Sun Streams Solar Project. Securing a purchase agreement with a customer in need of clean, renewable power will put in motion the chain of events confirming the need for the Sun Streams Gen-tie Project.

Q. **Do you have anything further to add to your direct testimony?**

A. No.

Attachment 1 to pre-filed testimony of:
Max Bakker

MAX A. BAKKER

SUMMARY

Energy professional with substantive experience in utility-scale project development, acquisition, strategy, and finance. Specialties include project origination, project planning and management, due diligence, and commercial negotiations.

EDUCATION

M.B.A. Presidio Graduate School, California
B.S. Northern Arizona University, Arizona

EXPERIENCE

ATLAS RENEWABLE POWER
Principal
With expertise in project development, acquisitions, financing, and joint ventures, Atlas provides development and transactional consulting to companies and organizations in the renewable energy sector.

FIRST SOLAR
Manager, Development
Responsible for utility-scale solar power plant development, origination/sales, site identification and acquisition, PPA/EPC negotiations, M&A Valuation and Feasibility, environmental permitting, stakeholder management.

NEXTLIGHT RENEWABLE POWER
Associate, Development
Responsible for site identification and acquisition, financial and market analysis, permitting, resource monitoring, and early stage project definition.

LIVENEUTRAL
MBA Intern, Strategy
Responsible for originating and marketing carbon credits in the United States and Europe.

HVS
Financial Analyst, Valuation & Feasibility
Extensive financial analysis, valuation, forecasting and economic feasibility analysis.

PROJECTS IN OPERATION

22 MW_{AC} PNM Portfolio II, New Mexico
Business & Development Manager

17 MW_{AC} Paloma Project, Maricopa County, Arizona
Development Manager

50 MW_{AC} Macho Springs Project, Luna County, New Mexico
Acquisition Due Diligence & Development Manager

290 MW_{AC} Agua Caliente Project, Yuma County, Arizona
Development Support

230 MW_{AC} Silver Antelope Valley Solar Ranch, Los Angeles County, California
Development Support

PROJECTS UNDER DEVELOPMENT

150 MW_{AC} Sun Streams Project, Maricopa County, Arizona
Development Manager

50 MW_{AC} Mesa Solar Project, Pinal County, Arizona
Development Manager

60 MW_{AC} Northstar Project, Fresno County, California
Acquisition Due Diligence & Development Manager

20-500 MW_{AC} Early Stage Projects, New Mexico
Development Manager

BIOGRAPHY

Max is a principal and founder at Atlas Renewable Power, a renewable energy consulting company. Atlas manages renewable energy projects throughout all stages of the development cycle from site control and permitting, power sale negotiations, financing and construction.

Before founding Atlas, Max was responsible for all project development and utility-system sales for the Southwestern US region at First Solar. While at First Solar he originated and acquired utility-scale PV projects and led their development into construction and operation.

Max was also an early member of NextLight Renewable Power, where he supported and managed the origination and development of 970 MW of US solar projects with PPAs that were won through utility power solicitations.

BEFORE THE ARIZONA POWER PLANT AND

TRANSMISSION LINE SITING COMMITTEE

Docket No. L-00000XX-14-0120-00168

CASE NO. 168

Sun Streams Gen-tie Project

DIRECT TESTIMONY

of

Jim Filippi

On Behalf of Applicant, Sun Streams, LLC

DIRECT TESTIMONY OF JIM PHILIPPI
On Behalf of Applicant Sun Streams, LLC
Case No. 168

I. INTRODUCTION

Q. **Please state your name.**

A. My name is Jim Filippi

Q. **By whom are you employed and in what capacity?**

A. I am employed by First Solar, Inc., the parent company of the Applicant, Sun Streams, LLC ("Sun Streams"). I am currently the Director of Transmission & Interconnection for First Solar and am responsible for the transmission-related activities to plan, site, permit and interconnect First Solar's new utility-scale generation projects in North America .

Q. **Please briefly describe your educational background and work experience.**

A. A statement of my qualifications is set forth in Attachment 1 to this testimony.

Q. **Please describe your role in the Sun Streams Gen-tie Project.**

A. I am responsible for all activities dealing with the regulatory and contractual elements of interconnecting and delivering the electricity produced from the proposed Sun Streams Solar Project into the electrical grid at the Hassayampa Switchyard, which will be made possible by the proposed Gen-tie Project Facilities that are the subject of this case.

Q. **What is the purpose of your testimony?**

A. I will describe the technical studies and approvals that have been completed, and the status of ongoing negotiations with the owners of the Hassayampa Switchyard leading to the contractual arrangements required in order to interconnect the Sun Streams Solar Project.

II. SUMMARY

Q. **Please summarize your testimony.**

A. Sun Streams is seeking authorization to construct the Sun Streams Gen-tie Project, a 34.5 / 500kV substation and approximately 0.3-mile 500kV gen-tie line. The Gen-tie Project will interconnect a proposed photovoltaic (PV) solar generating facility commonly referred to as the Sun Streams Solar Project, to the regional electric grid at the Hassayampa Switchyard. All of the required system impact studies, power flow, transient stability and short circuit analyses, and facilities studies required for the interconnection have been completed. The Engineering Staff of the Utilities Division of the Arizona Corporation Commission ("ACC") has reviewed and commented favorably on those studies. On the Applicant's behalf, First Solar has been negotiating with Salt River Project ("SRP"), the operating agent for the joint owners of the Hassayampa Switchyard, regarding the interconnection and construction agreements necessary to implement the desired interconnection. I have prepared a Statement on behalf of the Applicant summarizing the mature status of the negotiations, with which SRP has concurred. *See* Attachments 2 (Statement) and 3 (SRP Letter).

III. DETAILED TESTIMONY REGARDING INTERCONNECTION OF THE SUN STREAMS SOLAR FACILITY VIA THE SUN STREAMS GEN-TIE PROJECT

Q. **Please describe the studies that have been performed in preparation for the interconnection, and the response of the utility-sponsored self-regulating bodies and of the ACC Utilities Division after opportunities to review and comment on those studies.**

A. On February 27, 2013, the Applicant filed and docketed a Ten Year Plan with the ACC pursuant to A.R.S. § 40-360.02 (A). Sun Streams attached to the Plan a study entitled *Sun Streams Solar Project III System Impact Study Report to Western Arizona Transmission System Task Force & ANPP Engineering and Operating Committee for Sun Streams Solar Project III* prepared by Chuck-yan Wu (WHenergy Consulting, Inc.) and dated October 5, 2011 ("SIS"). The designation of "III" has since been dropped from the name and the project is now known simply as the Sun Streams Solar Project, but the proposed facility remains the same.

The SIS included power flow, transient stability and short circuit analyses. The SIS was vetted with the ANPP Engineering and Operating Committee and the Western Arizona Transmission System Task Force ("WATS"), which approved the analyses. A facilities study was requested and SRP prepared the final *Interconnection Facilities Study* dated March 30, 2012 ("FIS"). The SIS and the FIS have been provided to the ACC Utilities Division. The ACC Utilities Division recently docketed in this case a letter to Chairman John Foreman stating in relevant part:

> "The [Sun Streams] system impact study appears to have been properly completed, with evaluations made against North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability criteria. The study identifies the impact on the existing transmission system of interconnecting and delivering energy from the Sun Streams facility. Based upon the study results, it was found that there were no system upgrades required as a result of interconnecting the Gen-tie and its associated solar generation to the transmission system.

The 500 kV line is a short radial generation interconnection of approximately 0.3 mile and therefore provides no network transmission benefits. It should not affect the reliability or safety of operation of the grid when connected in compliance with its generation interconnection agreement, provided it is operated according to good utility practice and in accordance with any applicable reliability standards."

Sun Streams agrees with the ACC staff's assessment. A copy of the full letter is attached as Attachment 4.

Q. **Please briefly summarize the status of negotiations between the Applicant and SRP regarding the proposed interconnection.**

A. As stated previously, on behalf of the Applicant, First Solar has been actively negotiating with SRP to complete the necessary interconnection agreement and construction agreement. All of the interconnection studies have been completed and approved. Both Sun Streams and SRP are satisfied with the current progress of the interconnection arrangements. Negotiations to finalize the formal interconnection agreement and construction agreement required for the proposed interconnection are actively ongoing and productive. The Applicant has no knowledge of either an impediment to that ongoing process or material reason why the Applicant should not reasonably expect that such agreements will be completed and executed in due course consistent with the timing needs of the Sun Streams Gen-tie Project.

Q. **Do you have anything further to add to your direct testimony?**

A. No.

Attachment 1 to pre-filed testimony of: Jim Filippi

Jim Filippi
Director – Transmission and Interconnection
First Solar
135 Main Street, 6th Floor
San Francisco, CA 94105
(415) 935-2498
Jim.Filippi@FirstSolar.com

Mr. Filippi is Director of Transmission and Interconnection at First Solar, where he is responsible for the transmission-related activities to plan, site, permit and interconnect First Solar's new utility-scale generation projects in the Western Interconnection, including the 290 MW Agua Caliente Solar Project in Arizona and the 250 MW Antelope Valley Solar Ranch One Project in California, both now in operation. Mr. Filippi joined First Solar in 2010 with its acquisition of NextLight Renewable Power, where he was the Director of Transmission. Prior to joining NextLight, he was Principal Planning Engineer for Pacific Gas & Electric and represented PG&E on electric transmission planning issues in inter-utility contract negotiations and litigation, state regulatory proceedings, industry associations and joint utility transmission expansion projects. Prior to that, Mr. Filippi was Manager, Transmission Services for PG&E National Energy Group (NEG) responsible for the transmission-related activities for NEG's new generation projects in the West, including the Harquahala Generating Station in Arizona. Mr. Filippi has served as Chair of the Planning Coordination Committee of the Western Electricity Coordinating Council (WECC), as well as Chair of the Joint Guidance Committee, and he currently is Chair of the Transmission Expansion Planning Technical Advisory Subcommittee. He is registered in California as a Professional Engineer in electrical engineering.

Attachment 2 to pre-filed testimony of:
Jim Filippi

First Solar

April 21, 2014

Statement of Sun Streams, LLC, a wholly owned subsidiary of First Solar, Inc.

RE: Status of the negotiations and relationship with Salt River Project with respect to interconnection of the Sun Streams Solar Project at the Hassayampa Switchyard via the Sun Streams Gen-tie Project Facilities:

Sun Streams, LLC submits that the current status of the interconnection process for the Sun Streams Solar Project is that all interconnection studies have been completed and approved, and active negotiations with Salt River Project (SRP) are proceeding with mutually satisfactory progress to date on the following:

- Arizona Nuclear Power Project High Voltage Switchyard ("ANPP HVS") Large Generator Interconnection Agreement among the joint owners of the ANPP HVS and Sun Steams, LLC; and
- Design and Construction Agreement for Interconnection between Sun Streams, LLC and SRP, in its capacity as Operating Agent for the ANPP HVS.

SRP, as the Operating Agent and Balancing Authority for the ANPP HVS, oversees the ANPP HVS interconnection process and represents the ANPP HVS owners in the associated contract negotiations. SRP posts the status of all requests for generator interconnection to the ANPP HVS on its Open Access Same Time Information System (http://www.oasis.oati.com/SRP/). The queue list (attached) now posted, dated 01/08/2014, confirms that the Sun Streams Project, which is Queue Position 15, is active in the study phase, and that the WATS Preliminary Study (SIS) and the Detailed Planning Study (FAS) are complete.

Jim Filippi, Director, Transmission & Interconnection
First Solar, Inc.

First Solar, Inc.
135 Main Street, 6th Floor
San Francisco, CA 94105

Telephone 415 935 2500
Facsimile 415 935 2501

www.firstsolar.com

SRP AS OPERATING AGENT
INTERCONNECTION QUEUE - ANPP 500 KV SWITCHYARD AND ANPP VALLEY TRANSMISSION SYSTEM
UPDATED: 01/08/2014

PV 500 KV SWITCHYARD OR ANPP VALLEY TRANSMISSION SYSTEM INTERCONNECTION RQUEST					GENERATOR LOCATION	TRANSMISSION LINE INTERCON	POINT OF INTERCONNECTION	GENERATING FACILITY				STUDY STATUS	
QUEUE POSITION	RECEIVED DATE	QUEUE DATE	STATUS	IN-SERVICE DATE REQUESTED	COUNTY & STATE		TRANS LINE OR STATION	GEN TYPE	FUEL	SUMMER MAX MW	WINTER MAX MW	WATS Preliminary Study (SIS)	Detailed Planning Study (FAS)
1	12/7/2006	12/7/2006	Withdrawn	10/1/2008		Hassayampa-Pinal West 500 kV line	JOJOBA 500 KV						
2	5/22/2007	5/22/2007	Complete	4/30/2013	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	175	175	Complete	Complete
			Study	10/31/2014	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	175	175	Complete	Complete
			Study	4/30/2016	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	175	175	Complete	Complete
			Study	10/31/2017	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	175	175	Complete	Complete
3	2/11/2008	2/11/2008	Withdrawn	2/1/2015	Maricopa, AZ		JOJOBA 500 KV	PV	S	300	300	Complete	Complete
4	2/26/2008	5/1/2008	Withdrawn	5/1/2011	Maricopa, AZ		GEN TIE LINE TO HASSAYAMPA 500 KV	CSP	S	125	125		
			Withdrawn	future	Maricopa, AZ		GEN TIE LINE TO HASSAYAMPA 500 KV	CSP	S	62.5	62.5		
			Withdrawn	future	Maricopa, AZ		GEN TIE LINE TO HASSAYAMPA 500 KV	PV	S	40	40		
5	7/31/2008	7/31/2008	Withdrawn	10/1/2012	Maricopa, AZ		HASSAYAMPA 500 kV	CSP	S	250	250		
6	10/27/2008	10/27/2008	Withdrawn	1/1/2013	Maricopa, AZ		JOJOBA 500 KV	CSP	S	440	440		
7	12/22/2008	12/22/2008	Withdrawn	7/1/2013	Maricopa, AZ		HASSAYAMPA 500 kV	CSP	S	500	500		
8	1/29/2009	1/29/2009	Study	1/29/2016	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	125	125	Complete	Complete
9	1/29/2009	1/29/2009	Complete	1/29/2016	Maricopa, AZ		HASSAYAMPA 500 KV	PV	S	125	125	Complete	Complete
10	4/28/2009	4/28/2009	Withdrawn	1/1/2013	Maricopa, AZ		JOJOBA TO HASSAYAMPA 500KV TRANSMISSION LINE	CSP	S	440	440		
11	11/10/2009	11/10/2009	Study	10/1/2013		Palo Verde-Sun Valley 500 kV line	PALO VERDE 500 KV					Complete	Complete
12	11/10/2009	11/10/2009	Study	2014		Hassayampa-North Gila 500 kV line	HASSAYAMPA 500 KV					Complete	In-progress
13	2/18/2010	2/18/2010	Study	5/1/2013	Maricopa, AZ		HASSAYAMPA 500 KV	PV	S	200	200	Complete	In-progress
14	3/10/2010	3/10/2010	Withdrawn	1/1/2013	Maricopa, AZ		JOJOBA 500 KV	CSP	S	250	250		
15	7/13/2010	7/13/2010	Study	12/1/2016	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	150	150	Complete	Complete
16	4/5/2011	4/5/2011	Withdrawn	6/15/2014	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	300	300		
17	4/5/2011	4/5/2011	Withdrawn	6/15/2014	Maricopa, AZ		HASSAYAMPA 500 kV	PV	S	700	700		
18	8/12/2013	8/12/2013	Scope	12/31/2018	Maricopa, AZ		JOJOBA 500 KV	PV	S	300	300		
19	1/2/2013	1/2/2013	Scope	4/1/2015	Maricopa, AZ	Loop in/out of Hassayampa - Pinal West 500 kV line	JOJOBA 500 KV						

Generator Type: CC = Combined Cycle, CT = Combustion Turbine, CSP = Concentrated Solar Power, H = Hydro, IC = Internal Combustion, ST = Steam Turbine
PV = Photovoltaic, WT = Wind Turbine

Fuel Type: B = Biomass, C = Coal, LFG = Landfill Gas, NG = Natural Gas, NU = Nuclear, O = Oil, S = Solar, W = Wind, WTR = Water

Attachment 3 to pre-filed testimony of:
Jim Filippi

Delivering More Than Power™

Mail Station POB013
PO Box 52025
Phoenix AZ 85072-2025

Mark Avery
Transmission & Generation Operations
602-236-3960

April 30, 2014

Jim Filippi
Director - Transmission and Interconnection | First Solar, Inc.
135 Main Street, 6th Floor
San Francisco, CA 94105

Subject: Sun Streams Solar, LLC

Dear Jim:

SRP received the attached copy of the April 21, 2014, *Statement of Sun Streams, LLC, a wholly owned subsidiary of First Solar, Inc., RE: Status of the negotiations and relationship with Salt River Project with respect to interconnection of the Sun Streams Solar Project at the Hassayampa Switchyard via the Sun Streams Gen-tie Project Facilities* (hereinafter, the "Statement").

We confirm that the Statement is a correct characterization of the current status and satisfactory progress of our relationship and negotiations with Sun Streams Solar LLC with respect to the referenced agreements necessary for the interconnection of the Sun Streams Solar Project via the proposed facilities of the Sun Streams Gen-tie Project.

Sincerely,

Mark Avery
Manager, SRP Transmission Services

Cc: Jay I. Moyes

Attachment 4 to pre-filed testimony of:
Jim Filippi

ARIZONA CORPORATION COMMISSION

April 18, 2014

Certified Mail

Mr. John Foreman
Assistant Arizona Attorney General
Office of the Attorney General
1275 West Washington Street
Phoenix, Arizona 85007-2926

ORIGINAL

RE: SUN STREAMS, LLC GEN-TIE LINE SITING #168 - APPLICATION FOR CEC DOCKET NO. L-00000XX-14-0120-00168

Dear Chairman Foreman:

On April 8, 2014 you sent a letter concerning the Sun Streams, LLC ("Sun Streams") application for the issuance of a Certificate of Environmental Compatibility ("CEC") for a 500 kV generation tie line and associated 34.5 kV/500 kV substation facilities (collectively, "Gen-tie") in Maricopa County ("Application"). The Gen-tie will deliver electrical power from Sun Stream's proposed 150 MW photovoltaic solar generating facility located approximately 0.3 mile east of the Hassayampa Switchyard. This letter is the Utilities Division's response to that letter addressing the question of whether the proposed project improves the reliability or safety of the operation of the grid.

Sun Streams filed the system impact study completed for interconnection of the Gen-tie with its Ten Year Transmission Plan filing in Docket No. E-00000D-13-0002. The study was completed by WHenergy Consulting, Inc. in October 2011. The system impact study appears to have been properly completed, with evaluations made against North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability criteria. The study identifies the impact on the existing transmission system of interconnecting and delivering energy from the Sun Streams facility. Based upon the study results, it was found that there were no system upgrades required as a result of interconnecting the Gen-tie and its associated solar generation to the transmission system.

The 500 kV line is a short radial generation interconnection of approximately 0.3 mile and therefore provides no network transmission benefits. It should not affect the reliability or safety of operation of the grid when connected in compliance with its generation interconnection agreement, provided it is operated according to good utility practice and in accordance with any applicable reliability standards.

In addition, based upon information provided on the proposed facilities being located adjacent to an existing natural gas pipeline. The Utilities Division recommends inclusion of the standard cathodic study condition to evaluate the risk to any existing natural gas or hazardous liquid pipelines as follows:

When project facilities are located parallel to and within 100 feet of any existing natural gas or hazardous liquid pipeline, Applicant shall:

(a) Ensure grounding and cathodic protection measurements are performed to show that the project's location parallel to and within 100 feet of such pipeline results in no material adverse impacts to the pipeline or to public safety when both the pipeline and the project are in operation. Applicant shall take appropriate steps to ensure that any material adverse impacts are mitigated. Applicant shall provide to Commission Staff and file with Docket Control a copy of the measurements performed and additional mitigation, if any, that was implemented as part of its annual compliance-certification letter; and

(b) Ensure that measurements are taken during an outage simulation of the project that may be caused by the collocation of the project parallel to and within 100 feet of the existing natural gas or hazardous liquid pipeline. The measurements should either: i) show that such simulated outage does not result in customer outages; or ii) include operating plans to minimize any resulting customer outages. Applicant shall provide a copy of the measurement results to Commission Staff and file it with Docket Control as part of its annual compliance-certification letter."

If you have any questions, please feel free to contact me, at (602) 542-7270 or Ed Stoneburg at (602) 542-0755.

Sincerely,

for Steven M. Olea
Director
Utilities Division

SMO:ES:tdp

BEFORE THE ARIZONA POWER PLANT AND

TRANSMISSION LINE SITING COMMITTEE

Docket No. L-00000XX-14-0120-00168

CASE NO. 168

Sun Streams Gen-tie Project

DIRECT TESTIMONY

of

Randy Schroeder

On Behalf of Applicant, Sun Streams, LLC

DIRECT TESTIMONY OF RANDY SCHROEDER
On Behalf of Applicant Sun Streams, LLC
Case No. 168

I. INTRODUCTION

Q. **Please state your name.**

A. My name is Randy Schroeder.

Q. **By whom are you employed and in what capacity?**

A. I am a principal with ENValue, an environmental planning and permitting firm.

Q. **Please briefly describe your educational background and work experience.**

I have a Bachelors degree from Colorado State University in Environmental Science and a Masters Degree from Colorado State University in Natural Resources Management. I have over 36 years of environmental consulting experience. I have worked on over 100 power generation and transmission projects including numerous solar projects.

I have testified before the Siting Committee on the following projects:

- Cases 153 and 154, AVSE and AVSE II Solar Projects
- Case 145, Agua Caliente Solar Project
- Case 146, Q43 Transmission Line and Switchyard Interconnection Project
- Case 141, Coolidge Generating Station
- Case 124, Palo-Verde to Pinal West 500 kV Transmission Line
- Case 126, Pinal West to Southeast Valley 500 kV Transmission Line
- Case 090, Griffith Energy Project
- Case107, Sundance Energy Project

- Case 133, Northern Arizona Energy Project

A more detailed resume is attached as Attachment 1.

Q. **Please describe your role in the Sun Streams Gen-tie Project.**

A. I serve as the Project's Environmental Consultant.

Q. **What is the purpose of your testimony?**

A. I am going to provide a general overview of the Project and also describe the environmental compatibility of the Project that must be considered when issuing a Certificate of Environmental Capability (CEC) per A.R.S. § 40-360.06.

II. SUMMARY

Q. **Please summarize your testimony regarding the overview of the Project.**

A. Sun Streams, LLC is seeking a certificate to construct and operate the Sun Streams Gen-tie Project, a 34.5 / 500kV substation and 0.3-mile 500kV gen-tie line. This Project would interconnect the Sun Streams Solar Project, a proposed solar generating facility using photovoltaic (PV) technology, to the adjacent existing Hassayampa Switchyard.

This Project is located in western Maricopa County in an area that includes significant existing energy development including Palo Verde Nuclear Generating Station, the Arlington Valley Energy Facility, the Mesquite Power Generating Station, the Redhawk Power Station, the AVSE II solar generating facility, the Mesquite solar generating facility, and the Hassayampa Substation and the many transmission lines associated with it.

By interconnecting the Sun Streams Solar Project, the Project will help provide marketable renewable energy to utility customers and will help meet the state's policy objectives for renewable energy.

Q. **Please summarize your testimony regarding the environmental compatibility of the Project.**

A. The Project will occupy a very small footprint and is compatible with the local environment and meets the criteria for environmental compatibility that must be considered in issuing a CEC. It is compatible with existing land uses and plans for the Project vicinity. It will have limited impacts on fish, wildlife, and plants including sensitive species and habitats. It will not have noticeable noise impacts or interfere with communication signals. It will not negatively affect recreation or scenic, historical, or archaeological resources. It will be compliant with all applicable air and water pollution standards and all other relevant ordinances, plans, and regulations.

The Project has conducted a public process that has resulted in the local community being well informed about the Project and supporting the Project. This process is described in Exhibit J to the CEC Application.

III. DETAILED TESTIMONY REGARDING OVERVIEW OF THE PROJECT

Q. **Please provide a summary of the Sun Streams Gen-tie Project.**

The Sun Streams Gen-tie Project will consist of a new 5-acre 34.5 / 500kV substation (the "Project Substation") and a short, 0.3 mile 500kV gen-tie line (the "Gen-tie Line") originating at the Project Substation and interconnecting with the adjacent

existing 500kV Hassayampa Switchyard. The Gen-tie Line will originate on a dead-end structure within the Project Substation and terminate on an existing dead-end structure within the Hassayampa Switchyard.

The Project will include only three transmission structures: one within the Project Substation, one within the Hassayampa Switchyard, and one between the two substation / switchyard facilities.

The Project is located south of West Elliott Road in the NW1/4 of Section 14, T 1 S, R 6 W, G&SRB&M, in Maricopa County. It is approximately 5 miles southeast of Wintersburg, approximately 11 miles southeast of Tonopah, approximately 5 miles west-northwest of Arlington, and approximately 14 miles west of Buckeye, Arizona

IV. DETAILED TESTIMONY REGARDING ENVIRONMENTAL COMPATIBILITY

Q. **Please describe each of the criteria that must be considered per A.R.S. § 40-360.06, and how they apply to this Project, the studies that were performed to ascertain compliance with such criteria, and how the criteria and study results were addressed within the CEC application for this Project.**

A. Below (in italics) are the factors to be considered in issuing a certificate of environmental compatibility identified in A.R.S. § 40-360.06 followed by the relevant facts about this Project.

The Applicant conducted several environmental studies to evaluate the Project's potential effects on these factors. These included land use studies, the evaluation of plans proposed by other entities in the area, biological studies, cultural resource

studies, visual assessments, noise studies, and a recreation assessment. The results of each of these studies are included in the CEC Application and are summarized in the response to each factor below.

A. The committee may approve or deny an application and may impose reasonable conditions upon the issuance of a certificate of environmental compatibility and in so doing shall consider the following factors as a basis for its action with respect to the suitability of either plant or transmission line siting plans:

1: Existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed Sites.

The Sun Streams Gen-tie Project would impact very few acres of land, most of which is previously disturbed by past activities at and around the Hassayampa Switchyard. The jurisdiction regulating land use at the Project site is Maricopa County. Land ownership is private land.

The existing land uses in the area surrounding the Project Site are dominated by industrial uses which include several existing high voltage substations and transmission lines (including the Hassayampa Switchyard and multiple 500kV lines connecting to and emanating in multiple directions from it); existing thermal power plants including the Palo Verde Nuclear Generating Station, Arlington Valley Energy Facility, Mesquite Generating Station, and Red Hawk Power Plant; existing large-scale PV solar facilities (Arlington Valley Solar Energy II and Mesquite Solar Project); along with other associated and required industrial infrastructure such as natural gas pipelines and rail lines. The closest residence is about 1.75 miles away.

As mentioned above, Maricopa County is responsible for regulating land use on and around the Projects. The Maricopa County Comprehensive Plan 2020 was adopted and then revised in August 2002.

A Special Use Permit (SUP) was originally approved for the Sun Streams Solar Facility by the Maricopa County Board of Supervisors in 2011, allowing the development of the facility on an approximately 1,070 acre portion of the site located at the northwest corner of 355th Avenue and Elliot Road. Currently, an Amendment to this SUP is being processed by Maricopa County to allow the expanded development of the Solar Facility onto an additional 1,085 acres adjoining the currently entitled area of the site.

The designated land use in the Project area is Industrial and Proposed Open Space. Transmission lines and associated substations are allowable uses within these designations and therefore are compatible with Maricopa County Land Use plans.

The current zoning along the Gen-tie route is Rural – 190; and transmission lines are allowed in this zoning.

In summary, the Sun Streams Gen-tie Project would be consistent with the land use designation and zoning for the Project Site and surrounding area based on the pending Maricopa County applications. The surrounding land uses are predominately industrial with numerous power plants, substations and utilities.

2: Fish, wildlife and plant life and associated forms of life upon which they are dependent.

This is addressed in Exhibit D of the CEC Application. The Gen-tie Project is located on a small amount of mostly disturbed land that has areas of disturbed native habitat. The Project would be located among other existing electrical facilities and would result in negligible impacts to biological resources.

3: Noise emission levels and interference with communication signals.

This is addressed in Exhibit I of the CEC Application. The impact from construction and operation of the Gen-tie Project on the sound levels in the area would be minimal and the nearest noise receptor (residence) is approximately 1.75 miles away.

4. The proposed availability of the Sites to the public for recreational purposes, consistent with safety considerations and regulations.

Exhibit F of the Application addresses Recreation. The Project Site will not be available for public recreation purposes and nearby lands are likewise not available for recreation. There are also no existing or planned designated recreational facilities or areas in the immediate vicinity of the Project. Therefore, no recreational impacts are anticipated to result from the Sun Streams Gen-tie Project.

5: Existing scenic areas, historic Sites and structures or archaeological Sites at or in the vicinity of the proposed Sites.

This is discussed in Exhibit E of the CEC Application. The Project facilities will be very similar to the existing facilities at and around the Hassayampa Switchyard and will visually blend in with these existing structures (as depicted in the visual simulation for the Project.) There are no designated scenic areas in the vicinity of the Project.

A Class III cultural resources survey was conducted for the Project to determine if cultural resources were within the Project site. There are no known historic sites or structures or archaeological sites that would be affected by the proposed Sun Streams Gen-tie Project. The past disturbance activities on the Project Site limit the potential for archaeological resources to be present.

6. The total environment of the area.

The Project is surrounded by existing power plants, transmission lines, railroads, pipelines, and existing and proposed solar facilities. Development of the Project will not affect and will be compatible with adjacent land uses. Air emissions associated with the Projects would be very small.

7. The technical practicability of achieving a proposed objective and the previous experience with equipment and methods available for achieving a proposed objective.

This is addressed in Mr. Filippi's testimony.

8. The estimated cost of the facilities and Sites as proposed by the applicant and the estimated cost of the facilities and Sites as recommended by the committee, recognizing that any significant increase in costs represents a potential increase in the cost of electric energy to the customers or the applicant.

The expected cost of the Project is identified in section 4.b.iv of the CEC Application.

9. Any additional factors which require consideration under applicable federal and state laws pertaining to any such Sites.

The Project will acquire all applicable permits and approvals and comply with all associated laws, regulations and ordinances.

B. The committee shall give special consideration to the protection of areas unique because of biological wealth or because they are habitats for rare and endangered species.

This is discussed in Exhibit C of the CEC Application. There would be minimal potential impacts to these species by construction and operations because the small area affected by the Project is made up of disturbed native habitat and is immediately adjacent to existing electrical infrastructure. Sensitive species were not found to occur on the Project site and impacts to these species are not expected.

C. Notwithstanding any other provision of this article, the committee shall require in all certificates for facilities that the applicant comply with all applicable nuclear radiation standards and air and water pollution control standards and regulations, but shall not require compliance with performance standards other than those established by the agency having primary jurisdiction over a particular pollution source.

No specific air or water pollution control permits will be required for the Sun Streams Gen-tie Project. However, the Project will comply with the applicable dust control and stormwater control requirements administered by Maricopa County and the State.

D. Any certificate granted by the committee shall be conditioned on compliance by the applicant with all applicable ordinances, master plans and regulations of the state, a county or an incorporated city or town, except that the committee may grant a certificate notwithstanding any such ordinance, master plan or regulation, exclusive of franchises, if

the committee finds as a fact that compliance with such ordinance, master plan or regulation is unreasonably restrictive and compliance therewith is not feasible in view of technology available. . . .

Exhibit H of the CEC Application discusses existing plans. The applicable plans for Maricopa County (the local jurisdictional entity) are discussed in Exhibit A of the CEC Application and summarized in A.1 above. There are several existing electrical generation and transmission facilities in the immediate area as well as additional planned electrical facilities. The Project will comply with all applicable ordinances, master plans and regulations and will not require the Committee to grant any special exceptions under this statutory provision.

Q. Please describe the details of the public process that was conducted for this Project.

The Applicant conducted a public outreach project to solicit comments associated with the Gen-tie Project. This included the following:

- Open House – An Open House was conducted April 10, 2014 at the Arlington Elementary School to allow the public to have informal, one-on-one conversations with Project representatives and express concerns, provide input, and receive answers to their questions. Invitations to the Open House were published in the West Valley View newspaper on April 4, 2014 and were mailed to the property owners within 1,320 feet of the Gen-tie Project and the proposed Sun Streams Solar Facility and to jurisdictional entities.
- Project 1-800 number: The Gen-tie Project established and is maintaining a 1-800 number that is used to respond to questions and obtain comments from the public.
- Comment Forms: Comment forms were utilized at the Open House public meeting

to take written comments.

- Public Comment Tracking Database: The Applicant has created a database for documenting contacts with the public that will be maintained through construction. Contact records identify the name, contact information, topic(s) of discussion, and follow-up action needed and taken.
- Project Website: The Applicant has created a website to notify the public of all hearing dates and technical information regarding the Project. The website is: www.SunStreamsProject.com

Five individuals, including the president of a local citizens association, the Tonopah Valley Association, signed in at the Open House where they spoke with Project representatives and asked questions. Two written comments were received at the Open House which were supportive of the Project. Verbal comments received at the meeting were associated with support of the Project and job inquiries. We have also continued to receive calls on the 1-800 line and all of those calls have been associated with seeking employment opportunities. In addition, return correspondence was received from the Hopi Tribe regarding their review of the Project cultural report. Their brief response indicated that there are no historic properties significant to the Tribe associated with the Project.

This public outreach effort was conducted in addition to the Citizen Participation Plan that was implemented for the Sun Streams Solar Facility. This program also included

extensive outreach efforts to distribute information and solicit input from the public and interested stakeholders.

Q. **In your professional opinion, is the proposed Sun Streams Gen-tie Project, as described in the CEC Application for Case No. 168, environmentally compatible?**

A. Yes, it is.

Q. **Do you have anything further to add to your direct testimony?**

A. No.

Attachment 1 to pre-filed testimony of:
Randy Schroeder

RANDY SCHROEDER

EDUCATION

- **Masters of Science** (Environmental Science)
  Colorado State University
- **Bachelor of Science** (Natural Resource Management)
  Colorado State University

SPECIALTIES

- *Project Planning*
- *Permit Acquisition*
- *Strategy Development*
- *Environmental Impact Assessment*
- *Agency Negotiation*
- *Public Involvement*

CERTIFICATIONS/AFFILIATIONS

- Registered Environmental Professional, REP 5189
- Registered Environmental Assessor, REA 02735
- Registered Environmental Property Assessor, REPA 1011
- National Registry of Environmental Professionals
- National Association of Environmental Professionals
- International Association of Impact Assessment

EXPERIENCE 36 YEARS

- **ENValue**
  Principal
- **Greystone**
  Principal
- **Espey, Huston and Associates**
  Project Manager
- **Stearns-Roger Engineering Corporation**
  Environmental Planner

Mr. Schroeder has provided planning and permitting services for the development of many energy projects throughout the country. He has developed and implemented comprehensive strategies for project planning including comprehensive routing and siting studies and public / stakeholder outreach programs. He has also acquired all permits and approvals for individual projects as well as providing strategic input for regional development policies and programs. He has managed numerous interagency coordination processes, provided testimony for many energy projects, and has successfully negotiated and resolved issues and disputes through use of his knowledge of technical issues, environmental laws, and regulatory processes.

Mr. Schroeder has provided environmental planning and permitting services for many energy projects throughout the United States. These projects have included many transmission lines, power generation projects, renewable energy projects, and pipelines.

He has conducted siting studies to identify the optimal locations for projects considering the constraints, avoidance areas, and opportunities associated with various siting alternatives. He has also prepared Environmental Impact Statements (EISs) and Environmental Assessments (EAs) to satisfy the requirements of the National Environmental Policy Act (NEPA) when federal lands or other federal jurisdiction is involved. He has also prepared the environmental documents necessary to satisfy State Siting Act requirements. He has managed the acquisition of other needed permits such as 404 permits for stream and wetland crossings, air permits, water discharge permits, and right-of-way permits. He has developed mitigation plans for these projects and has also prepared detailed Plans of Construction that itemize the various mitigation requirements for specific portions of the project.

Transmission Lines

Mr. Schroeder has also provided planning and permitting services for many transmission projects. The work he has done on these projects has been for utilities, independent power producers, and units of government. These transmission line projects he has worked on have included both stand-alone transmission projects and those associated with interconnection of planned generation projects. He has analyzed over 75 transmission projects ranging from 500kV and 345kV lines to 69kV lines. He has also worked on many substation projects. Some of the transmission / substation projects that Mr. Schroeder has worked on include:

- NG-IV#2 500 kV Line
- PV-PW 500 kV Line
- Sunrise Power Link 500 kV Line
- Gardiner Park 345 kV Line
- PW-SEV 500 kV Line
- WETT 345 kV Lines
- Green Energy Express 500 kV Line
- WY-MT 230 kV Line
- Rockdale-West Middleton 345 kV Line
- Bay–Lake 345 kV Line
- Welton-Mohawk 230 kV Line
- DSWTP 500 kV Line
- BN-BS 230 kV Line
- Sundance Energy 230 kV Line
- Griffith Energy 230 kV Lines
- Westlake Energy 230 kV Line
- CB 345 Project
- M-IH 500 kV Project
- Chisago 345 kV Line
- CO-NM 345 kV Line
- Dry Fork Energy 230 kV Line
- Oregon Trail 345 kV Line
- Mountain View 230 kV Line
- CO-NM 230 kV Line
- Summit-Westward 230 kV Line
- Marys Lake 115 kV Line
- Blue Diamond 230 kV Line
- Southline 345 kV Line
- Moapa 230 kV Line
- Northern Lights 500 kV Line
- CA 500 kV Routing Study

Power Generation Projects

Mr. Schroeder has provided planning and environmental services for many types of power generation projects. These have included gas turbines, coal-fired plants, wind energy projects, cogeneration projects, nuclear plants, waste-to-energy plants, and hydroelectric projects. Many of these projects have provided baseload power and many have been peaking plants. He also has worked on energy storage projects including pumped storage technology. Some of the power generation projects that Mr. Schroeder has helped permit include:

- SPR Acquisition Due Diligence
- Coolidge 400 MW Peaking Project
- Welton-Mohawk 500 MW Project
- Sundance Energy 450 MW Power Plant
- Tehachapi Wind Project
- TC 500 MW Peaking Plant
- Blythe Energy 500 MW Power Plant
- Griffith Energy 600 MW Power Plant
- Westlake Energy 500 MW Power Plant
- Montezuma Energy 500 MW Plant
- Colorado Power Plant Siting Study
- Pastoria 500 MW Power Plant
- NAEP 185 MW Peaking Project
- Dry Fork Energy Storage Project
- Boulder Valley Pumped Storage Project
- Firth Cogeneration Project
- Rawhide Power Station
- Multiple 2000 MW Peaking Plant Siting
- Montana Power Due Diligence
- Oregon Trail 500 MW Power Plant
- CA/NV Geothermal Projects
- Desert Basin 500 MW Power Plant
- Buffalo IGCC 550 MW Power Plant
- Lakeside Power 500 MW Plant
- Mountain View 165 MW Power Plant
- Summit-Westward 500 MW Power Plant
- Blue Diamond Pumped Storage Project
- Ketchikan Lakes Hydroelectric Project
- Brush Cogeneraion Unit
- Spiritwood Power Station
- TS Hydro Project
- SRC Gasification Project
- Antelope Power Station
- Fort St. Vrain Power Plant
- Crystal Creek Pumped Storage

Solar Energy Projects

Mr. Schroeder has successfully sited and permitted many solar energy projects. These have included photovoltaic (PV) projects using both fixed-tilt and tracking systems, concentrating solar (CSP) projects (both trough and tower technology), and concentrating PV (CPV) projects. Some of the solar energy projects that Mr. Schroeder has helped site and permit include:

- Moapa Solar Energy Center 200MW
- Agua Caliente 290 MW Solar Project
- Arlington Valley 250 MW Solar Project
- Arlington Valley II 250 MW Solar Project
- Yuma 50 MW Solar Project
- Rio Mesa Solar 500 MW Solar Project
- Campo Verde 140 MW Solar Project
- Paloma 17 MW Solar Project
- Desert Center 50 MW Solar Project
- Borrego 26 MW Solar Project
- 250 MW CSP Solar Siting Study
- Quail Run 20 MW Solar Project
- Blythe Airport 100 MW Solar Project
- Centinela 170 MW Solar Project
- Nevada 100 MW Solar Project
- Hyder 100 MW Solar Project
- Adelanto Solar Project
- Multiple Solar Project Due Diligence
- Deming Solar Project
- Quartzite Solar Project
- Centennial Solar Project
- NREL Site EA

Pipeline Projects

Mr. Schroeder has provided environmental planning and permitting services for many pipeline projects throughout the United States. These pipeline projects have included natural gas pipelines, oil pipelines, CO_2 pipelines, NGL pipelines, water pipelines, and slurry pipelines. In addition to the pipelines, Mr. Schroeder has also evaluated associated facilities such as compressor/pump stations, spur lines, and terminals.

- FERC Environmental Training Program
- Baja Spur Routing Study
- TransColorado Pipeline Routing
- Express Pipeline EIS
- Rifle-Avon Pipeline EA
- Northern Tier Pipeline EA
- PSCC Pipeline EA
- Casper-Douglas Pipeline ER/EA
- Springdale-Yenter ER/EA
- North-South Pipeline EA/EIS
- Aledo Extension Pipeline ER
- Front Runner Pipeline ER
- Monument Pipeline EA
- Casper Loop Pipeline EA
- Black Mesa Pipeline Permitting
- FWGA Pipeline EA
- Douglas Spur ER
- Guernsey Compressor Station